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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/529,771	09/15/2000	Brian Chorley	MSI-27	3569

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EXAMINER

LEE, DIANE I

ART UNIT PAPER NUMBER

2876

DATE MAILED: 10/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/529,771

Applicant(s)

CHORLEY ET AL.

Examiner

D. I. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Receipt is acknowledged of the Amendment filed 07 October 2002. Claims 3 and 6 are amended; no claims have been canceled; and claims 7-11 have been newly added. Currently, claims 1-11 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. **Claims 1, 3-5, and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaule et al. [US 5,509,691-referred as Kaule] in view of Chen [US 4,792,667, admitted by the applicant].**

Kaule discloses a security thread (see figures 1-2) comprising:

a magnetic layer 12, 13 sandwiched between a first and second polymeric layers (a first and second protective layers 2, 3 or 8, 9), wherein the thread further comprises a first and second metallization layer 10, 11 between the protective layer and the magnetic layer (see figures 1-2).

Kaule does not disclose the protective layer is piezoelectric polymer having poled and unpoled regions capable of receiving a plurality of charges, which may be used in authentication of a document.

Chen discloses a method and apparatus for authenticating a document, such as an identification card, passports, or credit card, having a photograph 3, which has been covered by the protective layers (i.e., transparent polymeric material 5, see col. 5, lines 4+ and figure 1-3). Chen teaches the polymer layers, which applied to the document substrate as a coating or covering purpose to protect the document, is polarized for authentication and identification purpose. The protective layer is a piezoelectric polymer (see 1, lines 11+, lines 59+; col. 4, lines 3+; col. 5, lines 23+; col. 6, lines 32+; and figures 1-7). The protective layer of piezoelectric polymer is capable of receiving a plurality of charges, which may be used in authentication of the document in which the identification or signature of the document is embedded therein (see the abstract). The polymeric material can also be polarized partially such that the document forms a pattern by controlling the application of the polarization field, i.e., a pattern is formed with some of the areas being poled and the remaining areas being substantially non-poled (see col. 6, lines 33+ and figure 6). Therefore, the polymeric layer includes a plurality of unpoled regions (i.e., horizontal dipoles) and plurality of poled regions (i.e., vertical dipoles, see col. 4, lines 3+; col. 6, lines 32+; and figures 6-7).

In view of Chen's teaching, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the piezoelectric polymer on either one or both protective layers of Kaule as an authenticating means to utilize in verifying the security thread. Such modification would have increased security the security measure of the security thread. Accordingly, it would have been an obvious expedient.

5. **Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaule as modified by Chen as applied to claim 1 above, and further in view of Lawandy [US 6,259,506].** The teachings of Kaule as modified by Chen have been discussed above.

Chen disclose the polymeric material can also be polarized partially such that the document forms a pattern by controlling the application of the polarization field, i.e., a pattern is formed with some of the areas being poled and the remaining areas being substantially non-poled (see col. 6, lines 33+ and figure 6). The poled and unpoled regions of the protective layer to form a pattern to display different characteristics with respect to the level and polarity of current generated (i.e., by controlling the application of the polarization field, a pattern of poled areas can be formed, with the remaining areas being substantially non-poled (see col. 6, lines 33+ and figure 6).

Kaule as modified by Chen does not explicitly state that the formation of a pattern to display different characteristics by controlling the application of the polarization field would form a binary or tertiary code.

Lawandy discloses a multilayered security thread 1 having a metal layer 16 covered with protective layer layers 10, 12. The protective layer having a polymeric material such as a liquid crystal (LC) material 10a which provides the same function of the piezoelectric polymer (see figure 1A and 1B). Wherein the LC layer having regions 1a without the LC domains 10a and regions 1b with the LC domains 10a. Therefore, only in the regions 1b that containing the LC domains 10c are polarized in the presence of the electric field such that the LC layers 10, 12 are patterned in accordance with a bar code (see col. 7, lines 54+ and figures 2C-2D).

It would have been would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the encoding technique with polymeric material as taught by Lawandy in the teachings of Kaule as modified by Chen in order to encode additional validating data (i.e.,

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such as the denomination, serial number, and other desired information) on the security in order to increase the authenticity of the security thread.

Allowable Subject Matter

6. Claim 6 is allowed.
7. The following is a statement of reasons for the indication of allowable subject matter: the best prior art of the record, Kaule as modified by Chen and Lawandy, fails to teach or fairly suggest the security thread having a metallization layer between the piezoelectric polymer layer and the magnetic layer acts as a ground electrode for the piezoelectric layer, as set forth in the claim.

Response to Arguments

8. Applicant's arguments filed 07 October 2002 have been fully considered but they are not persuasive.
9. In response to applicant's argument with respect to Kaule reference that nowhere in Kaule discloses or suggest a piezoelectric polymeric layer capable of retaining a charge or series of charges (see, Response page 4, lines 8+), the Examiner believes that the Applicant misinterprets the claim rejection. The Applicant essentially argues that Kaule does not include a piezoelectric polymer layer. However, Chen teaches a document having a protective layer, which is a piezoelectric polymer layer (see the discussion above).
10. In response to applicant's argument of that the teachings of Chen are not properly combinable with the teachings of Kaule (see page 4, lines 11+), the Examiner respectfully disagrees. Applicant further pointed out that claim 1 recites "*A security thread comprising a magnetic layer sandwiched between protective layers, wherein at least one of the protective layers comprises a piezoelectric polymer.*" As applicant admits that Kaule teaches a security thread comprising a magnetic layer sandwiched between

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protective layers, but does not disclose the protective layers comprising a piezoelectric polymer. The examiner relied Chen for the teachings of the protective layer comprising a piezoelectric polymer.

Therefore, Kaule as modified by Chen discloses all the limitations of the specific claim.

11. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

12. In response to applicants' argument that the Examiner's conclusion of obviousness for the 35 USC §103(a) rejection to establish a *prima facie* case of obviousness, the Examiner respectfully disagrees. In contrary to the Applicants' statement, all the rejections under 35 USC §103(a) in the prior and the instant Office Action established a *prima facie* case of obviousness meeting the three basic criteria of the M.P.E.P. 2143.03 (8th ed. 2001). See the Office Action mailed on April 29th 2002. Furthermore, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Examiner has clearly pointed out rationale for appropriate combination of the references. Thus, the Applicants' argument on this point is not persuasive.

13. In response to applicant's argument with respect to Lawandy fails to disclose or suggest a security thread which includes a magnetic layer and a piezoelectric polymer layer, as recited in independent claim, and further fails to disclose or suggest a piezoelectric polymer layer has poled and

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unpoled regions forming a binary or tertiary code, the examiner respectfully disagrees. Although Chen disclose the polymeric material can also be polarized partially such that the document forms a pattern by controlling the application of the polarization field, and the poled and unpoled regions of the protective layer to form a pattern to display different characteristics; Kaule as modified by Chen does not explicitly states that the formation of a pattern to display different characteristics by controlling the application of the polarization field would form a binary or tertiary code. Lawandy discloses a security thread 1 covered with protective layer layers 10, 12. The protective layer having a polymeric material that provides the function of the piezoelectric polymer. The protective layer having regions 1a without the LC domains 10a and regions 1b with the LC domains 10a. The regions 1b that containing the LC domains 10c are polarized in the presence of the electric field such that the LC layers 10, 12 are patterned in accordance with binary code, i.e., a bar code (see col. 7, lines 54+ and figures 2C-2D). Thus, the Applicants' argument on this point is not persuasive.

14. In response to applicant's argument with respect new claims 7-12, (see the discussion above).

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. I. Lee whose telephone number is 703-306-3427. The examiner can normally be reached on Monday through Thursday from 5:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on 703-305-3503. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



D. I. Lee
Primary Examiner
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D.L.